



ASSISTANT SECRETARY OF DEFENSE
WASHINGTON, D. C. 20301

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DEPUTY DIRECTOR OF
DEFENSE RESEARCH AND ENGINEERING

*DDST has acting 10 Sept 64
Copy to DD1 + DD1
from Ex. Dir.*

The Honorable John A. McCone
Director of Central Intelligence
Langley, Virginia

Dear John:

One aspect of our overhead reconnaissance problem which I have given very considerable thought to over the last three years is the obtaining of world-wide background data adequate to provide a base for meeting the Defense mapping needs. The purpose of this letter is to discuss with you some of the things we may want to do.

As you know, a number of ARGON missions have now been successfully executed; and, in addition, we have flown small SI equipments, together with the 24" panoramic systems, to obtain mapping information. These capabilities, however, do not appear adequate to meet the technical needs of the military components of the DoD in terms of either horizontal positioning accuracy or contour accuracy. This is due to our improved guidance capability and increased need for geodetic accuracy since this is now the limiting item to our ability of hitting hard targets.

We have been exploring several possible techniques for satisfying these mapping needs. One possibility is to initiate a new program for development of a relatively long focal length framing camera. This is a route which the Army, in particular, has been urging on us. Another possibility on which work is under way is the development of a reseau in the 24" panoramic camera, which, together with the current or improved SI equipments, would provide a major step in meeting mapping needs.

NRO, OSD and NIMA
review(s) completed.

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We do not have complete agreement, as was evident in a recent DoD mapping symposium, within the mapping communities of the military departments as to which of these two approaches, panoramic camera with reseau or frame camera, is required to really satisfy authoritative currently expressed needs. Consequently, it may be prudent for us to consider some further engineering studies on both approaches.

Pursuing the reseau route is contingent upon two important factors -- one technical and one operational. The technical factor is, of course, the ability to produce an adequate reseau. If we grant this assumption, the current studies indicate to me a very high probability of most substantial improvement in our mapping capability. There is, however, one operational problem which should also be considered in this context. We have given first priority to reconnaissance in our overhead program. Consequently, although we can make maps, and are making maps, these missions are optimized to obtain reconnaissance information, in particular over the Sino-Soviet areas. The mapping needs, however, are world-wide, and the interest is in obtaining a global catalogue of basic photography whose metric quality is adequate to prepare maps needed for military operations. For example, there are mapping needs in the areas of South America, Africa, Southeast Asia and Europe which are not normally photographed in the reconnaissance missions as normally programed.

It has occurred to me that you may want to take the following action. Let us assume that the reseau for the 24" panoramic camera can be successfully developed and that we maintain either the current quality in our SI equipments or improve them by increasing the focal length of these equipments; you may want to meet the important majority of our immediate mapping needs by setting a few vehicles containing the 24" panoramic camera with the reseau together with the SI equipments. These would be flown on the standard boosters used for the reconnaissance missions employing these camera; but you could provide the world-wide background mapping information by adjusting the orbital characteristics, launch schedules, and the camera programming in order to obtain the world-wide bank of photogrammetric information needed to produce maps;

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reconnaissance information over our currently highest intelligence priority areas would still be available but would represent a secondary goal in these missions. This would, for example, imply a substantial amount of camera operation south of the equator, and operation of the camera in general over other areas which are not currently our highest priority reconnaissance areas. By a program such as this, it may very well be possible to obtain relatively quickly the basic materials needed in the future to produce good maps. The map production, of course, would take much longer than the time required to collect these materials.

I would like to obtain your comments on this possibility. It would seem to me that setting aside perhaps four vehicles for this operation would be a worthwhile option to pursue to satisfy our mapping needs. This action would, of course, as I mentioned earlier, be contingent upon the successful development of the reseau; but my concern, even if the reseau is successfully developed, is that unless we make the mission adjustments which I have indicated, we will still not be in a position to accommodate mapping needs.

I would, therefore, greatly appreciate your comments on this possible approach. If you want it, I could make a formal recommendation to you. We could, if you want it, discuss this in our weekly meetings.

Sincerely,



Eugene G. Fubini

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